

In the abstract:

Replace the abstract with the following version.

A digitally implemented voltage regulator having including a plurality of slaves coupled in parallel. Each slave includes a switching circuit that intermittently couples an input terminal and an output terminal of the voltage regulator in response to a digital control signal for the corresponding slave. A current sensor in each slave generates a digital first feedback signal derived from the current passing through the corresponding switching circuit. A digital controller receives and uses the digital feedback signals from the plurality of slaves to generate a digital control signal for each slave. The digital controller operates active slaves of the plurality of slaves at determined phase offsets to minimize voltage ripple and maintain the output voltage at the output terminal at a substantially constant level.